FEDOTOV, Ye.L., inzh.

Rate of sublimation of dry ice. Khol.tekh. 40 no.3:28-30 My-Je '63.

1. Leningradskiy tekhnologicheskiy institut kholodil'noy promysh-
lennosti.
(Dry ice)

MATVEYEV, Gennadiy Petrovich, nauchnyy sotr.; PRIVALOVSKAYA, Genriyeta
Aleksandrovna, nauchnyy sotr.; KHOREV, Boris Sergeyevich,
nauchnyy sotr.; Prinimali uchastiye: BUSHMELEV, G.A.(g.Kirov);
VODOVOZOV, S.A. (g.Moskva); LEN'KOV, G.Ya.; FEDOTOV, Ye.P.;
RYAZANTSEV, S.N.. otv. red.; LYALIKOV, N.I., red. [deceased];POK-
SHISHEVSKIY,V.V.,prof.,red,;ABRAMOV, L.S., red.; KONOVALYUK,
I.K., mladshiy red.; KISELEVA, Z.A., red.kart; BURLAKA, N.P.,
tekhn. red.

[The Volga-Vyatka Region; economic and geographical features]
Volgo-Viatskii raion; ekonomiko-geograficheskaia kharakteri-
stika. Moskva, Gos. izd-vo geogr. lit-ry, 1961. 533 p.
                                        (MIRA 15:2)
1. Otdel geografii SSSR Instituta geografii Akademii nauk
SSSR (for Matveyev, Privalovskaya, Khorev). 2. Zaveduyushchiy
Otdelom geografii SSSR Instituta geografii Akademii nauk SSSR
(for Pokshishevskiy).
        (Volga Valley—Economic geography)
        (Vyatka Valley—Economic geography)

FEDOSEV, Yu

PHASE I BOOK EXPLOITATION   SOV/4946

Mikhaylov, A. A., ed.

Stantsii v kosmose; sbornik statey (Space Stations; Collection of
    Articles) Moscow. Izd-vo AN SSSR, 1960.   414 p. 25,000 copies
    printed. (Series: Akademiya nauk SSSR.   Nauchno-populyarnaya
    seriya)

Resp. Ed.: A. A. Mikhaylov; Compiler: V. V. Fedorov; Ed. of
    Publishing House: Ye. M. Klyaus; Tech. Ed.: I. D. Novichkova.

PURPOSE: This book is intended both for the space specialist and
    the average reader interested in space problems.

COVERAGE: The book contains 73 short articles by various Soviet
    authors on problems connected with space travel and the launch-
    ing of artificial earth satellites and space rockets. Some pos-
    sibilities of future developments are also discussed. The ar-
    ticles were published in the period of 1957-1960. No person-
    alities are mentioned. There are no references.

II. EXPANDED DAYS OF SOVIET SCIENCE

Mikhaylov, A. A. Corresponding Member of the Academy
    of Sciences USSR. Soviet Space Rocket Approaches the
    Perihelion (October 18, 1959)   340

Shishakov, V. A. Candidate of Pedagogic Sciences. The
    Far Side of the Moon (October 8, 1959)   344

Sitenko, V. I. Corresponding Member of the Academy of
    Sciences USSR. Outer Space Photography (October 28, 1959)   348

Pokrovskiy, V. I. Doctor of Physical and Mathematical
    Sciences. Automatic Scout of Outer Space (October 28,
    1959)   351

Barabashov, N. P. Active Member of the Academy of
    Sciences USSR. Our Laboratory Is Outer Space
    (November 3, 1959)   355

Danilin, B. S. Candidate of Technical Sciences. In-
    vestigations Broadening Our Knowledge of the Universe
    (December 1959)   358

Ten Thousand Revolutions Around the Globe (Izvestiya,
    April 3, 1960)   369

The Third Sputnik Has Ceased to Exist (Izvestiya,
    April 9, 1960)   375

Danilin, B. S. Candidate of Technical Sciences.
    Lifeless Cosmonaut (April 14, 1960)   376

V. SPACE SHIPS

TASS Information (May 16, 1960)   381

Motion of a Space Ship (Pravda, May 16, 1960)   383

Sedov, L. I. Candidate of Technical Sciences. On the
    Road to the Stars (May 17, 1960)   384

Fedorov, Yu. Candidate of Medical Sciences. Before the
    Jump Into Space (May 18, 1960)   389

Kublinin, V. A. Academician. Automaton in Outer
    Space (May 20, 1960)   394

TASS Information on the Motion of the Space-Ship
    Satellite (May 21, 1960)   397

TASS Information   399

Second Soviet Space Ship (Pravda, September 4-6, 1960)   400

Greetings from the Central Committee of the CPSU and the
    Council of Ministers of the USSR (Pravda, August 23, 1960)   441

ZOR'KIN, Ya.M.; SIMONENKO, A.N.; FEDOTOV, Yu.A.; KUSHNIROV, I.A.

Some features of the tectonic structure of the Dzharkak-
Sarytash Upland. Dokl. AN Uz. SSR no.7:14-18 '59.
(MIRA 12:10)

1.Uzbekskiy filial Vsesoyuznogo nauchno-issledovatel'skogo geologo-
razvedochnogo neftyanogo instituta. Predstavleno akad. AN UzSSR Kh.M.
Abdullayevym.
(Uzbekistan--Geology, Structural)

YEVDOKOV, Y.V.; SHAPOV, N.N. (Smela, U.S.)

Absorption lines of PbO_2 in a high-frequency electric field in the 25-35 Mc. range. Ukr. fiz. zhur. 5 no.9:657 S '60.

1. Institut fiziki AN Ukrssr, Kiyev.

ZOR'KIN, Ya.M.; SIMONENKO, A.N.; FEDOTOV, Yu.A.; KUSHNIROV, I.V.

Tectonic structure of the foundation of the Bukhara-Khiva gas and
oil region. Dokl..AN Uz.SSR no.12:31-34 '59.   (MIRA 13:5)

1. Institut geologii i razrabotki neftyanykh i gozovykh mestorozh-
deniy. Predstavleno chlenom-korr. AN UzSSR G.A. Mavlyanovym.
            (Uzbekistan--Geology, Structural)

BABAYEV, A. G. ; FEDOTOV, Yu. A.

Tectonic pattern of the Kara-Kalpak A.S.S.R., as an indicator of
oil and gas occurrences. Uzb. geol. zhur. no.5:12-21 '60.
                                                    (MIRA 13:11)

1. Institut geologii i razrabotki neftyanykh i gazovykh mesto-
rozhdeniy AN UzSSR.
              (Kara-Kalpak--Petroleum geology)
              (Kara-Kalpak--Gas, Natural--Geology)

AKRAMKHODZHAYEV, A.M.; FEDOTOV, Yu.A.; MINAKOVA, N.Y..; IBRAGIMOV, Z.S.;
    ZHUKOVA, Ye.A.; BABAYEV, A.G., doktor geol.-miner. nauk, otv.
    red.; NURATDINOVA, M.R., red.; MOSHCHENKO, Z.V., red.;
    GOR'KOVAYA, Z.P., tekhn. red.

[Geology and some problems of oil and gas potentials in the Kara-
Kalpak A.S.S.R.]Geologiia i nekotorye voprosy neftegazonosnosti
Karakalpakii. Tashkent, Izd-vo Akad. nauk Uzbekskoi SSR, 1962.
162. p.   (MIRA 16:1)

1. Akademiya nauk Uzbekskoy SSR, Tashkent. Institut geologii i
razrabotki neftyanykh i gazovykh mestorozhdeniy.
        (Kara-Kalpak A.S.S.R.—Petroleum geology)
        (Kara-Kalpak A.S.S.R.—Gas, Natural—Geology)

AKRAMKHODZHAYEV, A.M.; FEDOTOV, Yu.A.

Oil and gas potentials of the Kara-Kalpak A.S.S.R.   Uzb. geol.
zhur. 7 no.4:5-9   '63.   (MIRA 16:10)

1. Institut geologii i razrabotki neftyanykh i gazovykh
mestorozhdeniy AN UzSSR.
          (Kara-Kalpak A.S.S.R.--Petroleum geology)
          (Kara-Kalpak A.S.S.R.--Gas, Natural--Geology)

INOGAMOV, Kh.Kh.; FEDOTOV, Yu.A.

Using the residual anomalies of the force of gravity in prospecting
submerged structures in the Ustyurt. Neftegaz.geol.i geofiz.no.8:
43-46 '64.   (MIRA 17:9)

1. Ustyurtskaya geofizicheskaya ekspeditsiya.

FEDOTOV, Yu.D.

The Ural Branch of the Academy. Izv.AS1A 4 no.1:129 '62.
(MIRA 15:11)

1. Uchenyy sekretar' Ural'skogo filiala Akademii stroitel'stva i arkhitektury SSSR.

(Ural Mountain region--Construction industry)

L 02107-67   EWT(m)/EWP(w)/EWP(k)/EWP(t)/ETI   IJP(c)   JD/HW
ACC NR: AP7002781   SOURCE CODE: UR/0133/66/000/007/0643/0643

REVIEWER: Fedotov, Yu. D.
ORG: Chelyabinsk Scientific Research Institute of Metallurgy (Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii)
TITLE: Development and organization of equipment for determining the ductility of metals and alloys at different temperatures and velocity conditions of deformation
SOURCE: Stal', no. 7, 1966, 643
TOPIC TAGS: metal deformation, ductility

ABSTRACT: An installation (plastomotor) of new design has been put in operation for determination of the ductility of steels and alloys and the deformation resistance at various temperatures. The plastomotor provides a variation of rates of deformation in a broad range (from 0.01 to 400 sec $^{-1}$) at temperatures up to 1250°C. Methods of velocity tests of specimens for tension and compression have been developed and tested. Special features of measurement of forces and displacements at different rates of deformation have been analyzed. Original measuring equipment has been created and is being used. Data on the deformation resistance and ductility of several steels have been obtained with the developed methods. The results of plastomotor tests permit finding the optimal working conditions of rolling mills according to the conditions of their loading and the most favorable intervals of the rates, degrees and temperatures of deformation of hard-to-form steels and alloys.
[JPRS: 37,758]

SUB CODE: 11, 20 / SUBM DATE: none

Card 1/1   UDC: 621.771.2.001.5

TALMUD, S.L.; TURZHETSKAYA, A.N.; VOLKOV, V.A.; IVASHKIN, G.P.; FEDOTOV, Yu.M.

Colloidal solubility of the resin from sulfite pulp and rosin. Koll.
zhur. 22 no.4:477-481 Jl.-Ag '60.   (MIRA 13:9)

1. Leningradskiy tekhnologicheskiy institut, Kafedra fizicheskoy i
kolloidnoy khimii.
(Gums and resins)

TALMUD, S.L.; TURZHETSKAYA, A.N.; VOLKOV, V.A.; FEDOTOV, Yu.M.

Colloidal solubility of resin from sulfite pulp and resin. Zhur.
prikl.khim. 34 no.10:2306-2315 0 '61.   (MIRA 14:11)

1. Leningradskiy tekhnologicheskiy institut tsellyulozno-bumashnoy
promyshlennosti.
                    (Gums and resins)   (Solubility)

LELCHUK, V. L.; YELFIMOV, O. I.; FEDOTOV, Yu. P.

"Experimental investigation of heat transfer from a tube wall to monatomic, diatomic, and triatomic gases at high temperature differences."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

Dzerzhinskiy All-Union Heat Technology Inst.

L 13457-66   EWT(1)/ETC(F)/EPF(n)-2/EWG(m)   WW

ACC NR: AT6001347   SOURCE CODE: UR/0000/65/000/000/0015/0024

AUTHOR: Lel'chuk, V. L.; Yelfimov, G. I.; Fedotov, Yu. P.   56
                                                                                B41

ORG: All-Union "Order of the Red Banner of Labor" Institute of Heat
Engineering im. F. E. Dzerzhinskiy (Vsesoyuznyy   ordena Trudovogo
Krasnogo Znameni teplotekhnicheskiy institut)

TITLE: Experimental study of heat transfer from a tube wall to one-,
two-, or three-atomic gases at high temperature gradients

SOURCE: Teplo- i massoperenos. t. I: Konvektivnyy teploobmen v
odnorodnoy srede (Heat and mass transfer. v. 1:   Convective heat
exchange in a homogeneous medium).   Minsk, Nauka i tekhnika, 1965,
15-24

TOPIC TAGS: heat transfer, propulsion

ABSTRACT: The heat transfer from a tube wall to air, argon, or carbon
dioxide was studied at gas temperatures from 300—870K and at Re
numbers of 14×10^3—684×10^3.   Steel tubes 11.39—12.25 mm in
diameter having wall temperatures of 670—1270K were used at flow Mach
numbers up to 1.   The following relationship was derived for all of the
investigated gases:

Card 1/2

L 13457-66

ACC NR: AT6001347

$$Nu_w = 0{,}021\ Re_w^{0{,}8} Pr_w^{0{,}4} \pm 10\%,$$

where

$$Re_w = \frac{\rho_w W d}{\mu_w};$$

(ρ is density; W is velocity; d, diameter; and μ, viscosity). In terms of temperatures, the flow parameters can be correlated by the following formula:

$$Nu_f = 0{,}021\ Re_f^{0{,}8} Pr_f^{0{,}4}\ \frac{T_f}{\sqrt{T_0 T_w}},$$

where T_f is the free stream temperature; T_w, wall temperature; and T_0, stagnation temperature. The subscript w refers to the parameters on the wall. Orig. art. has: 7 formulas and 2 figures.   [PV]

SUB CODE: 21/ SUBM DATE: 31Aug65/ ORIG REF: 006/ OTH REF: 002/
ATD PRESS:
Card 2/2

ACC NR: AP7010715   SOURCE CODE: UR/0020/66/171/006/1348/1351

AUTHOR: Plaksin, I. N. (Corresponding Member AN SSSR); Strizhko, V. S.;
Fedotov, Yu. S.

ORG: none

TITLE: Effect of diluents on the extraction of rare-earth elements by
carboxylic acids

SOURCE: AN SSSR. Doklady, v. 171, no. 6, 1966, 1348-1351

TOPIC TAGS: lanthanum, praseodymium, neodymium, gadolinium, carboxylic acid,
aliphatic alcohol

SUB CODE: 11, 07

ABSTRACT: The authors studied some peculiarities in the reaction of diluents
with aliphatic synthetic acids of the $C_7 - C_9$ fraction in the extraction of
lanthanum, praseodymium, neodymium and gadolinium. The role of the diluents
depends essentially on the proton affinity, as well as the ability to form
addition compounds with the acid molecules through hydrogen bonds of varying
strength and polarity. Carboxylic acids and alcohols posses donor-acceptor
properties with respect to hydrogen. Extraction is considerably less affected
by diluents which are only proton acceptors in an acid-base reaction. Nonpolar
diluents have the least effect. The diluents studied are listed in the
Card 1/2   UDC: 542.61

ACC NR: AP7010715

following order as to their effect on extraction equilibrium and their ability to form hydrogen bonds: heptyl alcohol, decyl alcohol, isoamyl acetate, metaxylene, dichlorodiethyl ether, carbon tetrachloride, kerosene. Orig. art. has: 3 figures, 11 formulas and 1 table. /JPRS: 40,361/

Card 2/2

IGONIN, P.G.; SVITKIN, V.V.; Prinimali uchastiye: CHEBOTAREV, A.F., starshiy
tekhnik; FEDOTOV, Yu.V., starshiy operator

Effect of soap concentration on the completeness of separation
of unsaponifiables. Khim.i tekh.topl.i masel 7 no.2:29-31 F '62.
(MIRA 15:1)

1. Groznenskiy nauchno-issledovatel'skiy neftyanoy institut.
(Acids, Fatty)   (Paraffins)   (Saponification)

NEDOCHETOV, V.S. [Nedochetov, V.S.]; FEDOTOV, Yu.V.; SHUL'GA, S.Z.
[Shul'ha, S.Z.]

Effect of mechanical treatment on nuclear quadrupole resonance
spectra in paradichlorobenzene. Ukr. fiz. zhur. 9 no.1:98 Ja
'64.   (MIRA 17:3)

1. Institut fiziki AN UkrSSR, Kiyev.

Manufacture of stabilized transformer and turbine oils. D. A. Guseinov, T. A. Tanrieva, A. R. Fedorova, and A. I. Karapetyan. Azerbaidzhan. Neft. Khoz. 1956, No. 7, 29-31.—Petroleum oils from various sources were used to manuf. transformer and turbine oils. Stability of the product was found to be dependent on the source of raw material. Treatment with dil. H_2SO_4 improved stability. Addn. of p-hydroxydiphenylamine increased stability by 40-60%.

J. R. Kozak

S/081/62/000/023/084/120
B144/B186

AUTHORS: ~~Fedotova, A. F.,~~ Stepanyan, E. G., Sadykhov, K. I., Akopova, A. A.

TITLE: Production of the additive CB-3 (SB-3) in an industrial plant

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 23, 1962, 595, abstract 23M215 (Novosti neft. i gaz. tekhn. Neftepererabotka i neftekhimiya, no. 5, 1962, 16 - 19)

TEXT: The process for obtaining the additive SB-3 (barium sulfonate) consists in the sulfonation of Д-11 (D-11) oil by sulfuric anhydride, neutralization of the sulfonated oil with barium oxide, and centrifugation to separate the solid impurities. In the industrial apparatus sulfonation is carried out at 45 - 55°C with sulfur dioxide containing 7.66 % sulfuric anhydride until a tar-free acid oil with an acid number of 18 mg KOH/g is obtained (within 26 hrs). Yield in acid oil: 93.6%. Neutralization was carried out with dry BaO, consumed in a quantity of 10 - 11 % by weight, at 60 - 70°C, until weak-alkaline reaction occurred; then the reaction
Card 1/2

Production of the additive ...   S/081/62/000/023/084/120
                                                  B144/B186

water was drawn off from the neutralized product at 95 - 130°C and with a
residual pressure of 150 - 200 mm Hg. The filter press proved inadequate
to liberate the additives from mechanical impurities, the content of which
in the neutralized product reaches 1.7 - 2.0 %. Satisfactory results
were obtained by using for this purpose a TВ-800 (TV-800) centrifuge.
However, this part of the process needs further development. The physico-
chemical indices of the finished additive and the material balance of the
industrial plant are given. [Abstracter's note: Complete translation.]

Card 2/2

KYAZIMOV, A.A.; FEDOTOVA, A.F.; STEPANYAN, E.G.

Industrial testing of a rotor-disk contactor. Khim.i tekh.topl.
i masel 7 no.5:10-13 My '62.

(MIRA 15:11)

1. Bakinskiy neftepererabatyvayushchiy zavod im. XXII parts"yezda.
(Petroleum--Refining)

CHERNOZHUKOV, N.I., doktor tekhn. nauk, prof., nauchnyy red.;
ZHERDEVA, L.G., red.; IVANOVA, L.V., red.; ISAGULYANTS, V.I.,
red.; ISMAILOV, R.G., red.; KREYN, S.E., red.; KULIYEV, A.M.,
red.; MAMEDOV, M.A., red.; PAPOK, K.K., red.; SPEKTOR, Sh.Sh.,
red.; FEDOTOVA, A.F., red.; SHKHIYAN, S.Kh., red.; LEVINA,
Ye.S., ved. red.; POLOSINA, A.S., tekhn. red.

[Improvement of the quality and the production of lubricating
oils] Uluchshenie kachestva i sovershenstvovanie proizvodstva
smazochnykh masel; trudy. Moskva, Gostoptekhizdat, 1963. 255 p.
                                              (MIRA 16:6)
1. Vsesoyuznoye soveshchaniye po uluchsheniyu kachestva bakin-
skikh smazochnykh masel i usovershenstvovaniyu tekhnologii ikh
proizvodstva, Baku, 1961.
                         (Lubrication and lubricants)

FEDOTOVA, A.F.; ZAKHARENKO, L.G.

Improving the quality of road-paving viscous bitumens.
Nefteper. i neftekhim. no.2:22-24 '63.   (MIRA 17:1)

1. Bakinskiy neftepererabatyvayushchiy zavod im. XXII
s"yezda Kommunisticheskoy partii Sovetskogo Soyuza.

MITROFANOV, M.G.; LEDYASHOVA, G.Ye.; BEREZHNOVA, M.I.; KYAZIMOV, A.A.;
FEDOTOVA, A.F.; STEPANYAN, E.G.

Test results of an experimental plant rotary disk contactor.
Trudy GrozNII no. 15:213-219 '63.   (MIRA 17:5)

L 01300-07   EWT(m)/EWP(t)/ETI   IJP(c)   JD/JG/WB

ACC NR: AP6003320   (N)   SOURCE CODE: UR/0365/66/002/001/0052/0056

AUTHOR: Al'tovskiy, R. M.; Fedotova, A. G.; Korolev, S. I.

ORG: none

TITLE: Investigation of the corrosion properties of yttrium. I. Effect of the pH on the corrosion and electrochemical behavior of yttrium

SOURCE: Zashchita metallov, v. 2, no. 1, 1966, 52-56

TOPIC TAGS: yttrium, corrosion resistance, electrochemistry, corrosion resistant metal

ABSTRACT: The effect of the pH on the corrosion resistance and stationary electrode potential of yttrium containing 0.1% O, 0.3% Si, and 0.3% Cu was studied in solutions of NaX + HX and NaX + NaOH types (X was the anion of Cl^- or NO_3^-). The corrosion of yttrium in nitrate and at a pH >3 in chloride solutions occurred with a decrease in corrosion rate with time. This indicated the formation of a protective film (probably hydroxide) on the surface of the yttrium. The dissolving of yttrium practically ceased to exist after 50-75 hours of the experiment. The rate of corrosion of yttrium decreased with increased pH, especially in the acid region (pH 2 - 4). The corrosion rate was somewhat lower in nitrate than in chloride solution. The metal was in the passive state at a lower pH (10.5) in the nitrate solution than in the presence of Cl^- (pH 13). Yttrium practically did not dissolve in bidistilled H_2O with and without addition of

Card 1/3   UDC: 669.794 : 620.193

L 01300-67

ACC NR: AP6003320

$\mathcal{L}$

alkalies. Therefore, the presence in solution of NO_3^- and especially of Cl^- has no effect on the resistance of yttrium to corrosion. Thermodynamically, yttrium should be a very active metal electrochemically. The standard potential of reaction $Y = Y^{3+} + 3e$ is -2.37 v. But even the most negative potentials of yttrium in the solutions studied were 1 v more positive. This suggested the presence of a protective film on the yttrium surface even in the active state of yttrium. The curve of stationary potential - pH for yttrium in chloride solution consisted of three parts. The stationary potentials at a potential below 3 and above 10 decreased with decrease or increase of the pH, respectively. The potential slightly increased with a decreased pH in the interval of pH 10-3. According to G. V. Akimov and I. L. Rozenfeld (Issledovaniya v oblasti elektrokhimicheskogo i korrozionnogo povedeniya metalov i splavov, Oborongiz, M., 1950), this can be explained most satisfactorily by the presence of potentials of the film-pore type on the metal surface. A complete passivation of yttrium in chloride solution occurred at pH 13. The inflection on the curve at pH 3 indicated a change in surface conditions. Probably, at pH <3 the hydroxide film was converted into yttrium chloride and the film lost its protective properties. The stationary potential-pH curve of yttrium in the nitrate solution was similar to that in the chloride solution except for the absence of a decrease in potential in the acid region (pH <3) and for the fact that the stationary potential in nitrate solutions at a pH of 3-10 was 0.25 v more positive than in chloride solutions. This was caused by the presence of NO_3^- which increased the potentials of the cathode sections. At a pH of 2-10 the corrosion of yttrium occurred with both hydrogen and oxygen depolarizations and at a pH >10 only

Card 2/3

L 01300-67

ACC NR: AP6003320

with oxygen depolarization. The cathode polarization curves of yttrium in alkaline solutions indicated that the relationship between overvoltage of H (i) and current density (η) at a pH of 13 has the form of: $\eta = 1.38 + 0.22 \log i$. The dependence of the overvoltage of hydrogen on the pH in the region of pH 6.2-13 has the form of: $\eta = 1.22 - 0.038$ pH. Orig. art. has: 6 fig.

SUB CODE: 11,07/ SUBM DATE: 19Apr65/ ORIG REF: 006/ OTH REF: 002

Card 3/3

L 04774-67   EWT(m)/EWP(t)/ETI   IJP(c)   JD/JG/WB
ACC NR: AP6025718   SOURCE CODE: UR/0365/66/002/004/0436/0438

AUTHOR: Al'tovskiy, R. M. ; Fedotova, A. G.; Korolev, S. I.

ORG: none

TITLE: Investigation of the corrosion properties of yttrium. II. Corrosion of yttrium in hydrofluoric acid

SOURCE: Zashchita metallov, v. 2, no. 4, 1966, 436-438

TOPIC TAGS: corrosion, corrosion rate, electrochemistry, yttrium, chemical kinetics, hydrofluoric acid

ABSTRACT: The corrosion kinetics and the electrochemical properties of yttrium in 2% and 18% HF were studied at 25° and 90°. Reduction in corrosion rate with time was proved to be due to the formation of a protective film of YF_3. Under the test conditions -- 250 hours at 25° and 24-50 hours at 90° -- the film remained intact, but on prolonged contact in HF the film breaks down and chips off. Deep pits and film crumbling were noted in 25 hours in vapor phase tests. Removal of oxygen from the system had no effect on the corrosion rate. The stationary potential of yttrium in HF solutions shifts to the positive side with time, indicating passivation. Anodic polarization is the

Card 1/2

UDC: 620.193.41:669.794

L 04774-67

ACC NR: AP6025718

same in 2% and 18% HF; the rate of corrosion is low--0.02-0.05 mm/year. The cathodic process is more rapid in the more concentrated HF solution. Orig. art. has: 4 figures.

SUB CODE: 07, 11, 13/ SUBM DATE: 22Jul65/ ORIG REF: 004/
OTH REF: 004

Card 2/2 SB

KULAKOV, D.V.; OCHKIN, F.V.; KARPOVA, V.V.; SIMAKINA, N.V.; YAGUDIN,
Z.Kh.; GREBENSHCHIKOVA, N.F.; CHEREMUSHKINA, V.M.; YELISEYEV,
I.A.; CHERVYAKOVA, A.P.; BEREZOV, A.A.; FEDOTOVA, A.I.; SILKINA,
I.V.; NOVIKOVA, V.P.; TANOVA, V.P.; NESVETAYEVA, G.M.; ADSKAYA,
V.M.; DRYUCHIN, A.P., otv. red.; KONDRASHOVA, V.I., tekhn. red.

[Economy of Saratov Province in 1960; collected statistics]Na-
rodnoe khoziaistvo Saratovskoi oblasti v 1960 godu; statistiche-
skii sbornik. Saratov, Gos.stat.izd-vo,1962. 325 p.   (MIRA 15:9)

1. Saratov(Province)Statisticheskoye upravleniye. 2. Nachal'nik
Statisticheskogo upravleniya Saratovskoy oblasti (for Dryuchin).
    (Saratov Province—Statistics)

16.9500

77477
SOV/103-21-1-8/22

AUTHOR: Yemel'yanov, S. V. Fedotova, A. I. (Moscow)

TITLE: Design of Optimum Automatic Control Systems of the
             Second Order Using Limiting Values of Gain of Control
             Circuit Elements

PERIODICAL: Avtomatika i telemekhanika 1960, Vol 21, Nr 1, pp 56-63
             (USSR)

ABSTRACT: In the study the problem is discussed of obtaining
             automatic control giving the optimum transient state
             in linear systems of the second order, when use is
             made of maximum magnitudes of transfer coefficients of
             the system. The optimum transient process is such a
             process which does not have overregulation when the step
             unit function is applicated, and for which the time,
             during which the controlled coordinate is smaller than
             any beforehand set value, is the minimum. (1) Design
             of optimum transient processes of automatic regulation
             systems of the second order using the limiting values
             of transfer coefficients: Figure 1 shows the system

Card 1/11

Design of Optimum Automatic Control Systems
of the Second Order Using Limiting Values
of Gain of Control Circuit Elements

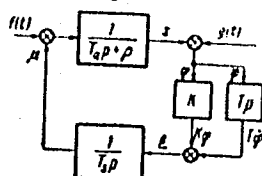77477
SOV/103-21-1-8/22

discussed.

Fig. 1.

Fig. 1.

The equations of the component elements of this system
are as follows: The equation of the regulated object
is:

$$T_a \ddot{x} + \rho x := -\mu + f(t);$$

(1)

Card 2/11

Design of Optimum Automatic Control Systems
of the Second Order Using Limiting Values
of Gain of Control Circuit Elements

77477
SOV/103-21-1-8/22

The performing mechanism's equation is:

$$T_{\cdot i} = \xi: \qquad (2)$$

The equation of the master arrangement is:

$$x - g(t) = \varphi; \qquad (3)$$

and the equation of the summating arrangement is:

$$\xi = K\varphi + T\dot{\varphi}.$$

Card 3/11

Here x is relative deviation of the regulated coordinate;
φ is relative change in the error signal; μ is rela-
tive deviation of the regulating device; $1/\rho$ is static
transfer coefficient of the object; T_a/ρ is time

Design of Optimum Automatic Control Systems
of the Second Order Using Limiting Values
of Gain of Control Circuit Elements

77477
SOV/103-21-1-8/22

constant of the regulated object; T_s is integration constant of the performing mechanism; K is gain of the amplifier of the error signal; T is coefficient of action over derivative; $\mathcal{E}$ is the output quantity of the summating device; $f(t)$ is external perturbance; and $g(t)$ is reference signal. Assuming $f(t) = g(t) = 0$ the following equation for the free oscillations of the system is obtained:

$$\ddot{\varphi} + 2h\dot{\varphi}_i + \omega_0^2 \varphi = 0.$$

HERE

$$2h = \frac{p}{T_a} + \frac{r}{T_a T_s}, \quad \omega_0^2 = \frac{K}{T_a T_s}. \tag{4}$$

Card 4/11

The phase plane analysis is made with respect to parameters K and T which can vary within the range:

$$-K_0 \leqslant K \leqslant K_0, \quad -T_0 \leqslant T \leqslant T_0.$$

Design of Optimum Automatic Control Systems
of the Second Order Using Limiting Values
of Gain of Control Circuit Elements

77477
SOV/103-21-1-8/22

where K_0 and T_0 are limiting magnitudes of coefficients
K and T, respectively. Variation of signs of coeffi-
cients K and T gives four system structures:

1) $K > 0$, $T > 0$;
2) $K > 0$, $T < 0$;
3) $K < 0$, $T > 0$;
4) $K < 0$, $T < 0$.

The equations of free oscillations are given for these
four cases on the basis of previously published papers.
Figure 2 shows the phase representation of the system.
Figure 2a and b, correspond to the first case, Fig. 2c
and d to the second, Fig. 2c to the third, and Fig. 2f
corresponds to the fourth case. The succession of
changes in the structure of the system must be so
determined that the point of representation moves

Card 5/11

Design of Optimum Automatic Control Systems
of the Second Order Using Limiting Values
of Gain of Control Circuit Elements

77477
·SOV/103-21-1-8/22
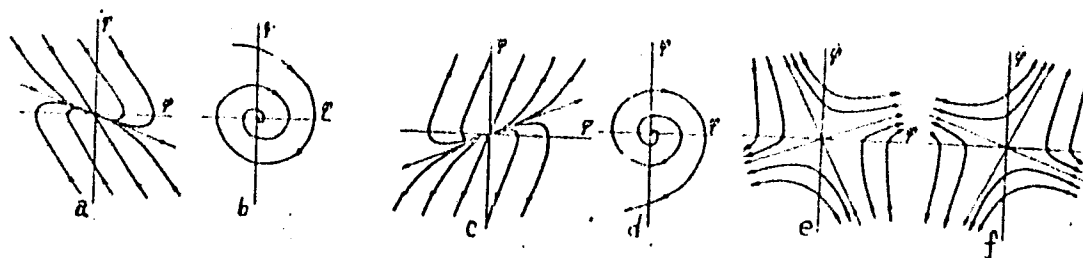
Card 6/11   Fig. 2.

Design of Optimum Automatic Control Systems
of the Second Order Using Limiting Values
of Gain of Control Circuit Elements
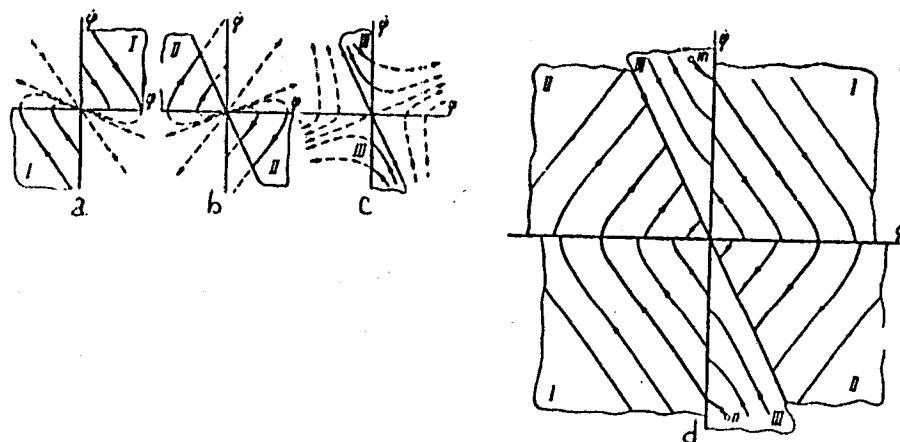
77477
SOV/103-21-1-8/22

toward the origin of coordinates in such a manner that
the transfer process of the system with respect to the
regulated coordinate be an optimum. The resultant
phase representation of the optimum transfer performance
is shown on Fig. 3. The phase representation of the
optimum control system is a three-leaf phase surface.
The nonlinear law of the regulation insuring such a
change in the structure of the system is given in the
form:

$$\xi(t) = \begin{cases} K\varphi + T\dot{\varphi} & \text{AT} \quad \varphi\dot{\varphi} \geqslant 0, \\ K\varphi - T\dot{\varphi} & \text{AT} \quad (T_j\dot{\varphi} + K_j\varphi)\dot{\varphi} < 0, \\ -K\varphi + T\dot{\varphi} & \text{AT} \quad (T_j\dot{\varphi} + K_j\varphi)\varphi \leqslant 0. \end{cases} \quad (14)$$

Card 7/11

Design of Optimum Automatic Control Systems
of the Second Order Using Limiting Values
of Gain of Control Circuit Elements
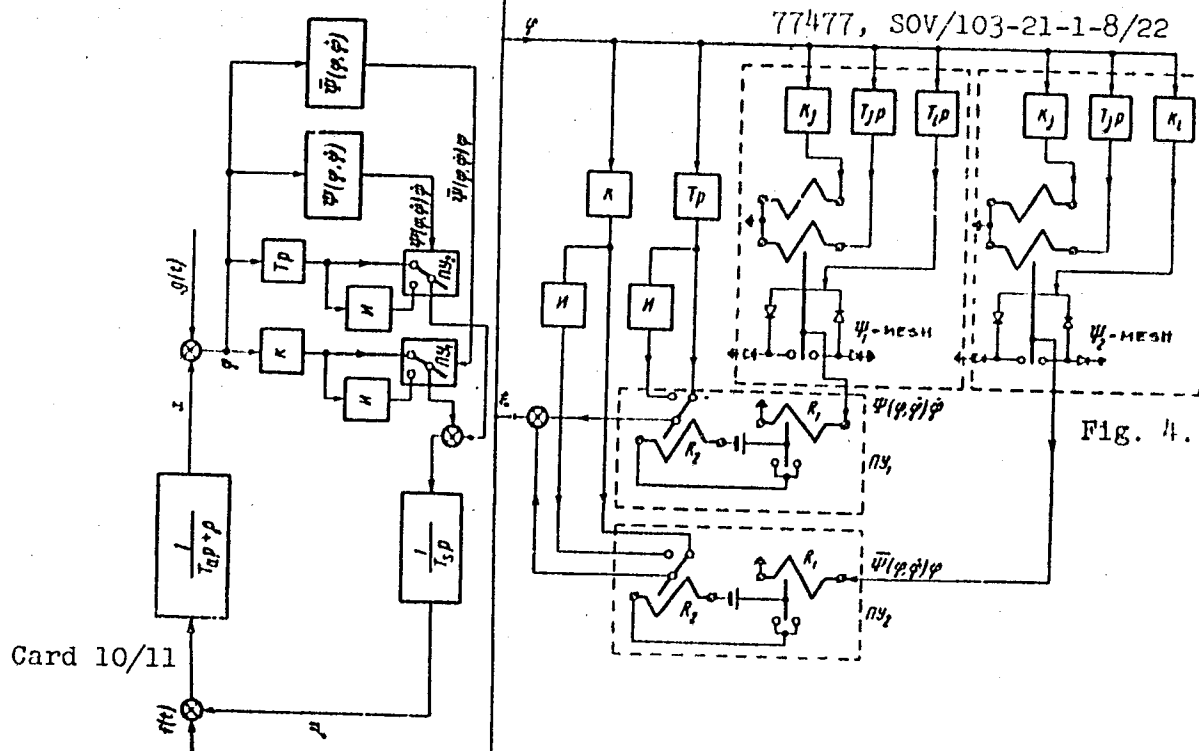
77477
SOV/103-21-1-8/22

Card 8/11   Fig. 3.

Design of Optimum Automatic Control Systems
of the Second Order Using Limiting Values
of Gain of Control Circuit Elements

77477
SOV/103-21-1-8/22

(2) Design of the optimum law of control: From Eq. (14) it follows that the system must contain a nonlinear correcting arrangement with a switching device changing the sign of the error signal and its derivative during the transient performance, as required by their signs and correlations. This is realized by the nonlinear arrangement of the "key" type consisting of two meshes. The diagram of the correcting system is shown on Fig. 4. This diagram is taken from one of previously published papers. The first ψ_1 mesh passes the signal ϕ when $(T_j \dot{\phi} + K_j \phi) \leq 0$ and the second ψ_2 mesh passes the signal $\dot{\phi}$ when $T_j \dot{\phi} + K_j \phi) \leq 0$.

There are 5 figures; and 20 references, 16 Soviet, 1 German, 1 Czechoslovak, 2 U.S. The U.S. references are: Fluegge-Lotz, I., Taylor, C. F. Synthesis of a Nonlinear Control System, Trans. IRE, PG AC-1, May, 1956;

Card 9/11

77477, SOV/103-21-1-8/22

Fig. 4.

Card 10/11

Design of Optimum Automatic Control Systems   77477
of the Second Order Using Limiting Values   SOV/103-21-1-8/22
of Gain of Control Circuit Elements

                Fluegge-Lotz, I., Wunch, W. S., On a Nonlinear
                Transfer System, Journ. Appl. Phys., Vol 26, April,
                1955.

SUBMITTED: June 20, 1959

Card 11/11

YEMEL'YANOV, S.V. (Moskva); FEDOTOVA, A.I. (Moskva)

Establishment of astatism in servosystems with variable structure
Avtom.i telem. 23 no.10:1298-1312 O '62.   (MIRA 15:11)
(Servomechanisms)

L 52583-65   EWT(d)/EWP(1)   Po-4/Pq-4/Pg-4/Fk-4/Pl-4   IJP(c)   BC
ACCESSION NR: AP5008318   S/0103/65/026/003/0454/0462

AUTHOR: Yemel'yanov, S. V. (Moscow); Fedotova, A. I. (Moscow)

TITLE: Astatic reproduction of transcendent functions by a variable-structure servo system

SOURCE: Avtomatika i telemekhanika, v. 26, no. 3, 1965, 454-462

TOPIC TAGS: servo, servo system, variable structure servo

ABSTRACT: A second-order variable-structure servo system is investigated which astatically reproduces input transcendent functions of this form: $g_1(t) = e^{\alpha t}$, $A \sin \omega t$, $A \cos \omega t$. As the system phase portrait is nonstationary, a field of tangents to the phase trajectories for fixed moments t is plotted in order to determine arrival of the state point to the switching line. An additional input variable dependent on the controlled parameter is introduced for improving static and dynamic properties of the astatic servo. It is claimed that the servo system

Card 1/2

L 52583-65

ACCESSION NR: AP5008318   0

is able to reproduce the above input function with a static error which (by adjusting
the system parameters) may be made lower than any specified value. Oscillo-
grams obtained on an electronic simulator demonstrate the reproduction with
$g_1(t) = A \sin \omega t$. Orig. art. has: 9 figures and 29 formulas.

ASSOCIATION: none

SUBMITTED: 19Dec63   ENCI: 00   SUB CODE: IE

NO REF' SOV: 003   OTHER: 000

Card 2/2

S/103/62/023/010/002/008
D201/D308

/6 -(.000

AUTHORS: Yemel'yanov, S. V. and Fedotova, A. I. (Moscow)

TITLE: Synthesis of zerc position error in follow-up systems
              with variable structure

PERIODICAL: Avtomatika i telemekhanika, v. 23, no. 10, 1962,
              1298-1312

TEXT: The authors attempt to synthesize a follow-up system reproduc-
ing without position error, any control action described by conti-
nuous (also transcendental) functions containing a single integrat-
ing unit and satisfying the condition that, within a wide range of
command functions g(t), the law of control remains unchanged. The
principle of automatic control systems with variable structure is
applied. The control functions g(t) analyzed are of the type g(t) =
C and g(t) = αt, at which the performance factors of transients re-
main constant. The analysis results in a nonlinear element in the
follow-up system forming the logical function of the control law in
various ways by means of typical logical elements. One possible

Card 1/2

Synthesis of zero ...

S/103/62/023/010/002/008
D201/D308

version consists of one polarized relay, two groups of diodes, two
differentiating networks and two potentiometers. There are 8 fi-
gures.

SUBMITTED: February 27, 1962

Card 2/2

L. 21086-65   EWT(d)/EPF(n)-2/EWP(1)   Po-4/Pq-4/Pg-4/Pae-2/Pu-4/Pk-4/Pl-4
IJP(c)   WW/BC

AUTHOR: Yemel'yanov, S. V. (Moscow); Fedotova, A. I. (Moscow)   52

TITLE: Reproduction of the controlling action $g(t) = \alpha^n t^n$ by astatic variable-structure servo systems

SOURCE: Avtomatika i telemekhanika, v. 26, no. 1, 1965, 67-72

TOPIC TAGS: automatic control, automatic control design, automatic control system, automatic control theory

ABSTRACT: The possibility of reproducing the controlling action $g(t) = \alpha^n t^n$, where α is a constant, t is time, $n = 1, 2, 3, \ldots$, by an astatic variable-structure second-order servo system is considered. A number of phase portraits for $n = 2, 3, \ldots$ is plotted. It is proven that the state point moving in the phase plane always hits the switching line whose sliding-condition segment, starting from the moment t_p encompasses the origin of coordinates and, later, the entire

Card 1/2

L 31086-65

ACCESSION NR: AP5003971

line. Hence, with any value of n, the static error is zero, and the transient
process transpires without overcontrol. Orig. art. has: 4 figures and
11 formulas.

ASSOCIATION: none

SUBMITTED: 19Dec63   ENCL: 00   SUB CODE: IE

NO REF SOV: 002   OTHER: 000

Card 2/2

FEDOTOVA, A. L.

USSR/Agriculture-Horticulture

Card	:	1/1
Authors	:	Fedotova, A. L.
Title	:	New forms of early tomatoes
Periodical	:	Priroda, 6, 107 - 109, June 1954
Abstract	:	New forms of scientifically grown early-ripening tomatoes are described. Illustrations.
Institution	:	Agricultural Experimental Station, Gorki-Lekinskiye
Submitted	:	....

FEDOTOVA, A. M., Doc of Med Sci -- (diss) "On the Regulation of the Level

of Iron in Blood Serum and Especially Iron Exchange During Infections

and Intoxications," Moscow, 1959, 21 pp (Acad of Rxx Med Sci USSR)

(KL, 6-60, 125)

FEDOTOVA, A.M. (Moskva)

Blood serum iron content and its regulation [with summary in English]. Pat.fiziol. i eksp.terap. 3 no.1:61-67 Ja-F '59.
(MIRA 12:2)

1. Iz patofiziologicheskoy laboratorii (rukovoditel' - prof. N.M. Nikolayev [deceased]) Institut pediatrii AMN SSSR.
(IRON, in blood
eff. of various drugs in animals (Rus))

FEDOTOVA, A.M.; VOLKOVA, T.N.

Modification of erythrocytes in various stages of scarlet fever.
Pediatriia, Moskva No.3:25-32 May-June 50.   (CIML 19:4)

1. Of the Department of General Pathology of the Child (Head —
Prof. N.M.Nikolayev) and of the Infectious Diseases Clinic (Head --
Honored Worker in Science Prof. A.I.Dobrokhotova), Insitute of
Pediatrics of the Academy of Medical Sicences (Director of Institute--
Honored Worker in Science Prof. G.N.Speranskiy, Active Member of the
Academy of Medical Sciences).

FEDOTOVA, A.M.;BRAGINSKAYA, V.P.;KRASOVINA, T.S.

Neuro-humoral dynamics in scarlet fever. Pediatriia, Moskva no.6:34-38
Nov-Dec 1953.   (CIML 25:5)

1. Of the Pathology Division (Scientific Supervisor -- Prof. M. M.
Nikolayev) and the Infectious Clinic (Scientific Supervisor -- Honored
Worker in Science A. I. Dobrokhotova, Corresponding Member AMS USSR)
of the Institute of Pediatrics (Director -- Prof. M. N. Kasantseva),
Academy of Medical Sciences USSR.

FEDOTOVA, A.N.; BRAGINSKAYA, V.P.; KRASAVINA, T.S.

Neuro-humoral dynamics in scarlet fever. Pediatriia no.6:34-38
N-D '53.   (MLRA 7:1)

1. Iz otdeleniya patologii (nauchnyy rukovoditel' - professor
N.M.Nikolayev) i infektsionnoy kliniki (nauchnyy rukovoditel' -
zasluzhennyy deyatel' nauki, chlen-korrespondent Akademii medi-
tsinskikh nauk SSSR A.I.Dobrokhotova) Instituta pediatrii Akade-
mii meditsinskikh nauk SSSR (direktor - professor M.N.Kazantseva).
                                              (Scarlet fever)

FEDOTOVA, A.M.

Role of the liver in blood serum iron reactions in experimental
inflammation. Vop. med. khim. 7 no.6:574-578 N-D '61. (MIRA 15:3)

1. Institut pediatrii AMN SSSR, Moskva.
                         (LIVER)
                    (IRON IN THE BODY)
                     (INFLAMMATION)

FEDOTOVA, A.M.; MIGINA, T.V.

Pathogenesis of hyperferremia in hepatitis. Pat.fiziol.i eksp. terap. 9 no.4:79-80 Jl-Ag '65.   (MIRA 18:9)

1. Institut pediatrii (direktor M.Ya.Studenikin) AMN SSSR, Moskva.

LEVIN, Ya.A.; FEDOTOVA, A.P.; RAKOVA, N.F.; SAVICHEVA, G.A.; KUKHTIN, V.A.

Condensed heterocycles. Part 2: Condensation of 5-alky-3-amino
-1-3-amino-1,2,4-triazoles with acetoacetic ester. Zhur.ob.khim. 33
no.4:1309-1314 Ap '63.   (MIRA 16:5)

1. Kazanskiy filial Nauchno-issledovatel'skogo kinofotoinstituta.
        (Triazole)   (Acetoacetic acid)

IVIN, Ya.A.; FEDOTOVA, A.P.; KUKHTIN, V.A.

Condensed heterocycles. Part 6: Mechanism of the formation of the system 6-oxo-1,2,4-triazolo[2,3-]pyrimidine. Zhur.ob.khim. 34 no.2:499-501 F '64.
(MIRA 17:3)

1. Institut organicheskoy khimii AN SSSR, Kazan'.

FEDOTOVA, A.Ye.

General strike of postal and telegraph workers. Vest. sviasi 15
no.11:28-29 N '55.   (MIRA 9:2)

1.Nauchnyy sotrudnik TSentral'nogo muzeya sviasi imeni A.S.Popeva.
              (Russia--Revolution of 1905)

FEDOTOVA, A.Ye., nauchnyy sotrudnik.

  Seizure of the communications facilities in Petrograd in October
1917. Vest. sviazi 17 no.11:30-32 N '57.   (MIRA 10:12)

  1. TSentral'nyy muzey svyazi im. A.S. Popova.
       (Russia--Revolution, 1917-1921)

FEDOTOVA, A. Ye.

BRONEVITSKIY, V.P.; VISLENEV, M.V.; ZINOV'YEVA, U.Z.; MILYUGIN, A.M.;
  RASIN, B.I.; FEDOROV, A.A.; FEDOROV, A.D.; FEDOTOVA, A.Ye.;
  VOLKHOVER, R.S., tekhn. red.

  [Central Museum of Communications named after A.S.Popov]
  TSentral'nyy muzei sviazi imeni A.S.Popova. Leningrad,
  1962. 234 p.   (MIRA 15:11)

  1. Russia (1923- U.S.S.R.)Ministerstvo sviazi.
    (Leningrad—Communications museums)

Investigation of electrochemical processes involved in corrosion of metals in electrolytes containing hydrogen sulfide. N. D. Tomashov and A. Z. Fedotov. *Trudy Inst. Fiz. Khim., Akad. Nauk S.S.S.R. No. 5, Issledovan. Korrozii Metal.* No. 4, 125–39(1955).—The study consisted in drawing polarization curves from data obtained in $0.5N$ NaCl solns. mixed with varying proportions of HCl to provide pH of 1 and 4. The electrodes were Pt and spectroscopically pure Fe. The atm. was varied from pure O to pure H_2S. It was shown that when the reaction proceeded with H depolarization at the cathode, H_2S decreased the overpotential of H evolution and facilitated the reaction at the anode, thus leading to acceleration of the corrosion rate. When the reaction proceeded with O depolarization, H_2S still stimulated the anode reaction but the ionization of O taking place at the cathode was hindered. This effect was already noticeable when the concn. of H_2S in the soln. was 5×10^{-4} %. In this case the total effect of H_2S on the process of corrosion depended on its relative effects at the anode and the cathode.   N. Goidowski

Investigation of the corrosion of metals in electrolytes containing hydrogen iulfide. N. D. Tomashov and A. Z. Fedotova. *Trudy Inst. Fiz. Khim., Akad. Nauk S.S.S.R., No. 5, Issledovan. Korrozii Metal. No. 4, 140-62(1955).—* Eighteen different metals (cast iron and steel of different compns., Al and its alloys, Cu, and Zn) were immersed for 185 days in a $0.5N$ NaCl soln. maintained under an atm. contg. 2% H_2S. The attack was measured by the loss of wt. The presence of H_2S in the atm. increased about 1.5 times the corrosion rate of all Fe alloys except Si-cast iron whose attack decreased to 70% of its former value. Al and its alloys, Cu, and Zn were attacked less (almost to 22% of the former value). The results concerning the variation of corrosion rate of the different Fe alloys in synthetic sea water as a function of partial pressure of H_2S (from 0.1 to 100%) showed that the corrosion rate for any given concn. was detd. by the relative magnitude of the O and H depolarization. In an atm. of 2% H_2S, O depolarization was slowed down while H depolarization was improved in such proportion that the corrosion rate passed through a max. for this concn. For 100% H_2S, the corrosion, which proceeded with H depolarization alone, was lower than under an atm. of pure air.   N. Goldowski

TOMASHOV, N.D.; FEDOTAVA (Valiulina) A.Z.

Investigation of metal corrosion in electrolytes containing hydrogen
sulfide. Trudy Inst.fiz.khim. no.5:140-152 '55.   (MLRA 9:5)
        (Hydrogen sulfide) (Electrolytic corrosion)

FEDOTOVA, A. Z.

TOMASHOV, Nikon Danilovich. Prinimali uchastiye: TYUKINA, M.N.; PALEOLOG,
Ye.N.; CHERNOVA, G.P.; MIKHAYLOVSKIY, Yu.N.; LUNEV, A.F.; TIMO-
NOVA, M.A.; MODESTOVA, V.N.; MATVEYEVA, T.V.; BYALOBZHESKIY, A.V.;
ZHUK, N.P.; SHREYDER, A.V.; TITOV, V.A.; VEDENEYEVA, M.A.; LOKO-
TILOV, A.A.; BERUKSHTIS, G.K.; DERYAGINA, O.G.; FEDOTOVA, A.Z.;
FOKIN, M.N.; MIROLYUBOV, Ye.N.; ISAYEV, N.I.; AL'TOVSKIY, R.M.;
SHCHIGOLEV, P.V.. YEGOROV, N.G., red.izd-va: KUZ'MIN, I.F.,
tekhn.red.

[Theory of the corrosion and the protection of metals] Teoriia
korrozii i zashchity metallov. Moskva, Izd-vo Akad.nauk SSSR,
1959. 591 p.   (MIRA 13:1)
          (Corrosion and anticorrosives)

80232
S/076/60/034/04/22/042
B010/B009

5.4600

AUTHORS: Tomashov, N. D., Paleolog, Ye. N., Fedotova, A. Z. (Moscow)

TITLE: Electrochemical and Corrosion Behavior of Semiconductors in
              Electrolyte Solutions. I. Electrode Processes on Germanium in
              Sulfuric Acid Solutions in the Presence of Hydrogen Peroxide

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 4, pp. 833 - 840

TEXT: Since germanium is the electron semiconductor now most frequently used
the kinetics of the electrode processes of germanium monocrystals of the n- and
p-types in sulfuric acid solutions with different hydrogen peroxide contents was
investigated in the present paper. The samples were polished or etched in an
SR-4 solution (15 cm^3 CH_3COOH, 25 cm^3 HNO_3, 15 cm^3 HF, and 0.06 cm^3 Br_2). The
curves of cathodic polarization (Fig. 1) of n-type germanium show that this ma-
terial behaves, in principle, like a metal electrode. With regard to the discharge
of hydrogen ions n-germanium is not an effective cathode and exhibits a high hy-
drogen supertension. Table 1 shows the change in the hydrogen peroxide concentra-
tion of a sulfuric acid solution (pH = 1) + 0.11 M H_2O_2 in the cathodic

Card 1/3

Electrochemical and Corrosion Behavior of Semiconductors
in Electrolyte Solutions. I. Electrode Processes on
Germanium in Sulfuric Acid Solutions in the Presence of
Hydrogen Peroxide

80232
S/076/60/034/04/22/042
B010/B009

polarization of n-germanium in the presence of air at 25°C. The process continues until H_2O_2 is reduced, and the cathodic polarization of germanium is greatly decreased. The cathodic polarization of p-germanium is more inhibited than that of n-germanium, i.e., the H_2O_2 reduction as well as the hydrogen ion discharge. This may be due to an additional potential drop on account of the reduction of the number of holes in p-germanium, so that the principal role in the reduction reaction on p-germanium is played by the electrons in the zone of valency. The anodic behavior of p-germanium differs from that of n-germanium. The anodic dissolution on p-germanium is similar to that on normal metal. With current densities up to 30 ma/cm^2 p-germanium remains active in all solutions and dissolves into Ge^{4+}. $\mathcal{LH}$ The velocity of delivery of the holes to the surface of n-germanium may be regarded as determining the anodic dissolution process of n-germanium. This results in a marked ability of the electrode to be polarized and in the occurrence of an anodic saturation current whose magnitude is independent of the composition of the solution and increases when the electrode is exposed to light. There are

Card 2/3

Electrochemical and Corrosion Behavior of Semiconductors
in Electrolyte Solutions. I. Electrode Processes on
Germanium in Sulfuric Acid Solutions in the Presence of
Hydrogen Peroxide

80232
S/076/60/034/04/22/042
B010/B009

5 figures, 2 tables, and 7 references, 1 of which is Soviet.

ASSOCIATION: Akademiya nauk SSSR Institut fizicheskoy khimii (Academy of
Sciences USSR Institute of Physical Chemistry)

SUBMITTED: July 4, 1958

Card 3/3

S/076/60/034/05/14/038
B010/B002

5. 4600

AUTHORS: Paleolog, Ye. N., Tomashov, N. D., Fedotova, A. Z.

TITLE: Electrochemical and Corrosion Behavior of Semiconductors in
             Electrolyte Solutions. II. The Rate of Solution of Germanium
             in Sulfuric Acid in the Presence of Hydrogen Peroxide

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 5,
             pp. 1027-1031

TEXT: The dissolution of germanium in electrolyte solutions has not yet
been investigated systematically though this problem is of special impor-
tance for the production of semiconductors, i.e., for the etching of the
surface of germanium. In the present paper, the authors studied the dissolu-
tion of n-type and p-type germanium in H_2SO_4 (pH-1), H_2SO_4 (pH-1) +

+ 0.12 M H_2O_2 and 8.8 M H_2O_2. The solution was carefully mixed, and the rate
of dissolution was determined at 25°C by a colorimetric determination of the
germanium content of the solution in certain intervals. The analyses were
carried out by L. S. Kupriyanova. The results obtained (Table) show that
the rate of dissolution is independent of the type of germanium (n-type or
p-type) and rises in the presence of H_2O_2. Furthermore, it changes little
in time. A cathodic or anodic polarization of the germanium electrode
Card 1/2

Electrochemical and Corrosion Behavior of   S/076/60/034/05/14/038
Semiconductors in Electrolyte Solutions.   B010/B002
II. The Rate of Solution of Germanium in
Sulfuric Acid in the Presence of Hydrogen
Peroxide

leads to a decrease in the rate of dissolution. On the strength of the
results obtained the authors establish that under the present experimental
conditions the dissolution of germanium has an electrochemical nature. As
the dissolution of n-type germanium by means of H_2O_2 is raised with the
same intensity as in the case of p-type germanium, it is assumed that on
the surface of n-type germanium the concentration of holes is higher, and
that the cathodic process is facilitated by the reduction of hydrogen
peroxide. There are 2 figures, 1 table, and 4 references: 1 Soviet,
2 German, and 1 American.

ASSOCIATION: Akademiya nauk SSSR Institut fizicheskoy khimii
               (Academy of Sciences of the USSR, Institute of Physical
               Chemistry)

SUBMITTED: August 4, 1958

Card 2/2

24-7700   1143, 1043, 1151, 1150

21501
S/020/61/137/004/026/031
B101/B208

AUTHORS: Paleolog, Ye.N., Fedotova, A.Z., and Tomashov, N.D.

TITLE: Kinetics of electrodic processes and the mechanism of
              spontaneous dissolution of n-type and p-type germanium
              of different resistivity

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 4, 1961, 900 - 903

TEXT: The present paper was intended to solve the following problem: In
spite of equal chemical composition and equal surface condition, hydrogen
liberation and reduction of H_2O_2 takes place more slowly with p-type ger-
manium than with n-type Ge. On the basis of the general concepts of semi-
conductor physics, the authors proceeded from the assumption that preva-
lently electrons of the valency band participate in the cathodic reduction
of H_2O_2 in the case of p-type Ge. With increasing resistivity of p-type Ge
(reduction of hole concentration), the rate of this process decreases owing
to impoverishment of the surface in holes. The change in the rate of the
cathodic process in p-type Ge as a function of its resistivity would thus

Card 1/6

Kinetics of electrodic processes ...

be an indirect proof of this assumption. Cathodic polarization and rate of spontaneous dissolution of the following Ge specimens have now been measured:

	n-type Ge	p-type Ge
resistivity ρ, ohm.cm	1.0; 10.0; 20.0	1.3; 12.0; 20.0
diffusion length L, mm	0.5; 1.3; 1.5	0.4; 1.0; 1.5
ρ/L	2.0; 7.7; 13.3	3.2; 12.0; 13.3

The experiments were carried out in H_2SO_4 (pH = 1.0); H_2SO_4 (pH 1.0) +

+ 0.2 N H_2O_2; and 0.5 N Na_2SO_4 + 0.05 N $K_3Fe(CN)_6$. The method has already

been described by the authors (Ref. 1: ZhFKh, 34, no. 4 (1960)). The re-

sults obtained from H_2SO_4 are given in Fig. 1, and those from $H_2SO_4+H_2O_2$

in Fig. 2. The reaction of $\left[Fe(CN)_6\right]^{3-}$ was not inhibited in the case of

p-type Ge. Inhibition of the reaction with H_2SO_4 and $H_2SO_4+H_2O_2$ increased

with increasing ρ of p-type Ge. The curves show no section that would

correspond to the limiting current of free electrons. This confirmed the

Card 2/6

Kinetics of electrodic processes ...

assumption that the majority carriers in n-type Ge consist of free electrons, in p-type Ge, however, of electrons of the valency band. Hardly any impoverishment in holes occurred on the surface of p-type Ge, owing to the positive reduction potential of this ion. The rate of spontaneous dissolution in H_2SO_4(pH 1.0)+0.2 N H_2O_2 did not depend on the type of conductivity and φ, and was between 0.87 - 0.98 mg/cm^2.hr. This is explained by the fact that the surface of both types of Ge in this solution is positively charged at a steady potential, and hole concentration is thus increased. The rate of spontaneous dissolution is here determined by the cathodic process of n-type Ge and the anodic process of p-type Ge. The values calculated from the polarization diagram for the steady potential and the rate of spontaneous dissolution were in good agreement with experimental data. There are 3 figures and 7 references: 4 Soviet-bloc and 3 non-Soviet-bloc. The 2 references to English language publications read as follows: W. Brattain, G. Garrett, Bell System Techn. J., 34, no. 1, (1955); J.B. Flyhn, J. Electrochem. Soc., 105, 715, (1958).

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences USSR)

Card 3/6

FEDOTOVA, A. Z.

Dissertation defended for the degree of Candidate of Chemical Sciences at the Institute of Physical Chemistry in 1962:

"Kinetics of Electrode Processes for Germanium and the Mechanism of Its Self-Dissolution."

Vest. Akad. Nauk SSSR.   No. 4, Moscow, 1963, pages 119-145

ACC NR: AP6015012   SOURCE CODE: UR/0364/66/002/005/0547/0550

AUTHOR: Paleolog, Ye. N.; Fedotova, A. Z.

ORG: Institute of Physical Chemistry, Academy of Sciences SSSR, Moscow (Institut fizicheskoy khimii Akademii nauk SSSR)

TITLE: Electrochemical polishing of germanium

SOURCE: Elektrokhimiya, v. 2, no. 5, 1966, 547-550

TOPIC TAGS: germanium, metal polishing, metal surface

ABSTRACT: An attempt is made to provide the basis for a method for the electrochemical polishing of germanium and to elucidate the factors affecting the quality of the polished surface. The anodic dissolution of germanium in alkaline and certain acid electrolytes (hydrofluoric, oxalic, and citric acids), in which complex compounds of germanium can form, was studied kinetically as a function of concentration and stirring rate; a rotating electrode was used. The electrochemical polishing of p-type germanium was shown to be possible in such electrolytes in the range of potentials corresponding to the limiting diffusion current determined by the diffusion rate of the hydroxyl ions. The microfinish of the electropolished germanium surface obtained is 100-300 Å. All the relationships established for p-type germanium also apply to n-type germanium, but in the latter the electropolishing requires an intense illumi-

UDC: 541.13 : 621.316.592

Card 1/2

L 30214-66

ACC NR: AP6015012

nation of the anode surface. The authors thank Z. Ye. Sheshenina and E. I. Yevko for carrying out the electron-microscopic studies. Orig. art. has: 3 figures.

.SUB CODE: 07,11/   SUBM DATE: 16Jul65/   ORIG REF: 003/   OTH REF: 004

Card 2/2

FEDOTOVA, Dina Emmanuilovna; YERSHOV, Leonid Viktorovich

[Computers and programming] Matematicheskie mashiny i
programmirovanie. Moskva, In-t radioelektroniki i gor-
noi elektromekhaniki. No.2. 1964. 36 p.
                                    (MIRA 18:8)

838. Shortening the vulkanisation cycle of motor tyre inner tubes. E. [illegible] Taf. Telkn. Dokl. Mosk. Shinnogo Zavoda, 1950, No. 2, 20-31; Kauć. i Rezina, 1951, 16, No. 4, 40.

*Free radicals in the decomposition reactions of phenyl-
azotriphenylmethane, nitrosoacetanilide, and phenylazo-
trinitromethane in solutions.* G. A. Razuvaev and B. I.
Fedotov. (Gorki State Univ.). *Zhur. Obshchei Khim.*
(*J. Gen. Chem.*) 31, 1118-22(1951).—Ph₃N₂CPh₃ (5 g.) in
30 ml. refluxing BuOH stirred vigorously with 180 g. Hg
5 hrs. in a CO₂ atm. gave much N (starting at 70°, with a
red coloration) and gave a tar contg. an org. Hg deriv.
which could not be isolated. Similar heating of 10 g. azo
deriv. in CCl₄ with 200 g. Hg gave PhHgCl. Heating 3 g.
azo deriv. in C₆H₆ with 6 g. Ph₂Sn 5 hrs. in a CO₂ atm. gave
(Ph₂Sn)₂, m. 229°; the same results were obtained in CCl₄.
No Sn formed. PhN(NO)Ac (2 g.) and 3 g. Ph₂Sn let stand
in CCl₄ 3 days until the N evolution ceased gave Ph₂Sn,
m. 225°; 1.2 g. nitroso deriv. with 1.5 g. (Ph₃Sn)₂ as above
gave in 3 days Ph₃SnCl. PhN₂C(NO₂)₃ (15 g.) in C₆H₆ let
stand 5 days until the N evolution ceased gave a little o-
O₂NC₆H₄OH and a possible mixt. of p-O₂NC₆H₄OH with 2,4-
(O₂N)₂C₆H₄OH; no Ph₆ was found. Similar reaction in
Ethyl Cellosolve gave in 3 days an oil, b. 75-115°, rapidly
decomposed by H₂SO₄ and giving a pos. test for HNO₃,
indicating the formation of a nitrite of Ethyl Cellosolve in
the reaction; no C₆H₆ was found, but a mixt. of nitro-
phenols, m. 96°, was isolated. When the reaction is re-
peated in CCl₄ in the presence of Hg (3 days at room temp.)
warming causes evolution of N oxides, and the mixt. yields

o-O₂NC₆H₄OH and mixed nitrophenols, m. 85°; salts of a
mercurous type were found in soln. No aromatic hydro-
carbon was detected. In all the reactions of this substance
apparently the Ph radical is oxidatively nitrated during
the reaction.   G. M. Kosolapoff

CA

Free radicals in the decomposition reactions of phenylazo-
triphenylmethane, nitrosoacetanilide, and phenylazotri-
nitromethane in solutions. G. A. Razuvaev and B. I.
Fedotova. J. Gen. Chem. U.S.S.R. 21, 1219-23(1951)
(Engl. translation).—See C.A. 46, 8006g.   B. R.

FEDOTOVA, YE. I.

USSR/Chemistry - Polymerization; Peroxides   Jul/Aug 52

"New Polymerization Initiators," G. A. Razuvayev, Yu. A. Ol'dekop, Ye. I. Fedotova, Gor'kiy U

"Uspekh Khim" Vol XXI, No 4, pp 379-421

Reviews foreign work on the subject (101 references). Among USSR contributions to this field (4 references), mentions investigation which established that hydroperoxides of tertiary alcs are extremely effective in promoting emulsion polymerization of 1,3 butadiene; comparison of rates of decompn of tertiary alc hydroperoxides at various temps in alpha-methylstyrene; study of the effect of these peroxides on polymerization of styrene in the liquid phase; initial work by A. A. Berlin, A. A. Moiseyev, and F. Kh. Abel'_on the use of azonitriles and azocarboxylic acid esters as polymerization initiators /the reference on this is apparently to a 1948 USSR patent application/.

216T22

FEDOTOVA, YE. I.

Chemical Abst.
Vol. 48 No. 6
Mar. 25, 1954
Organic Chemistry

Free radicals in reactions of decomposition of benzyl-aminodiazob- tene in solvents. G. A. Razuvaev, R. I. Fedotova, and A. G. Ovchinnikova (Gorki State Univ.). Zhur. Obshchei Khim. 23, 440-8(1953).—Heating 0.6 g. PhCH₂NHN:NPh (I) in 25 ml. CCl₄ and 50 g. Hg with stirring 7 hrs. (when N evolution ceased) gave CCl₄ 7, BzH 34.3, PhCH₂NH₂ 15, and PhCH₂NHPh 10.5%; tarry residue yielded 15.7% PhHgCl. Heating 2.5 g. I in 20 ml. HOCH₂CH₂OEt on a steam bath, finally on a metal bath until N evolution ceased, gave BzH at 5, PhCH₂NH₂ 10, PhCH₂NHPh 20%, and some AcH, but no C₆H₆ was detected. Hence 2 processes occur simultaneously a radical cleavage forming Ph and PhCH₂NH₂ and an intramol. reaction, which forms PhCH₂NHPh radicals, and an N. with loss of
G. M. Kosolapoff

Synthesis of azodicarboxylic acid methyl ester and study of its ability to initiate certain chemical reactions. E. L. Fedotova, R. Ya. Khvilivitskii, and I. I. Zmachinskii. *Trudy Leningrad. Tekhnol. Inst.* *Uchebnyi Zapiski Gor'kovsk. Univ.* 1953, No. 31, 153-9.—(NH C O Me) (I) *Referat. Zhur., Khim.* 1954, No. 41224.—(:NCO$_2$Me)$_2$ (II), b$_5$ 107-8°. The with HNO$_3$ gave 23.2%. thermal decompn. of II at 90-360° occurs with a quant. evolution of N. The polymerization of Me methacrylate (III) when initiated by II was more easily controlled than when initiated by Bz$_2$O$_2$ or (:NCO$_2$Et)$_2$. II also initiates the emulsion polymerization of III. I, obtained in 95.3% yield from ClCO$_2$Et and N$_2$H$_4$, m. 127-8° (from water). I (80 g.) in 60 ml. HNO$_3$ (d. 1.37) mixed with 40 ml. HNO$_3$ (d. 1.45) at 0° and the mixt. kept 1.5 hrs. and poured into ice water gave 23.2% II. E. Wierbicki

FEDOTOVA, E. N., inzh.; AROHINA, Yu. N., kand. tekhn. nauk, dotsent

Use of active dyes in fur dyeing. Izv. vys. ucheb. zav.; tekh.
leg. prom. no.4:55-60 '62.   (MIRA 15:10)

1. Moskovskiy tekhnologicheskiy institut legkoy promyshlennosti.
Rekomendovana kafedroy tekhnologii kozhi i mekha.

(Fur—Dressing and dyeing)

FEDOTOVA, G. A.

Structure of the Paleozoic folded basement in the Zeravshan
intermontane trough. Sov. geol. 6 no.7:143-147 Jl '63.

(MIRA 16:8)

1. Uzbekskiy geofizicheskoy trest.

LYUBARSKIY, G.D.; YEVZERIKHIN, Ye.I.; SLINKIN, A.A.; Prinimala uchastiye
    FEDOTOVA, G.A., studentka

    Catalytic activity of solid solutions in the system nickel -
    copper. Kin. i kat. 5 no.2:311-318 Mr-Ap '64.   (MIRA 17:8)

    1. Fiziko-khimicheskiy institut imeni Karpova.

IGOK AN'; MARTYNOVA, M.I.; MAZURIN, A.V.; FEDOTOVA, G.P.

    Kwashiorkor in children. Vop.okh.mat.i det. 7 no.7:40-45 Jl '62.
                                                   (MIRA 15:11)

    1. Iz detskoy kliniki gospitalya Ban-May, Khanoy.
                       (KWASHIORKOR)

ZAMURAYEVA, N.I.; TER-OGANYAN, M.G.; FEDOTOVA, I.A.

Some recommendations for a work method for translators of scientific
and technological literature. NTI no.11:19-20 '64.

(MIRA 18:1)

VERSHININA, V.V.; FEDOTOVA, I.I.

Local binding materials and slag portland cement from slags ob-
tained during the electric smelting of the semifinished products
of the lead and zinc industries. Trudy Alt. GNII AN Kazakh. SSR
14:150-159 '63.   (MIRA 16:9)
        (Binding materials) (Slag cement) (Nonferrous metal industries—By-
                                                          products)

GOMOZOVA, V.G.; FEDOTOVA, I.M.; LYUTTSAU, V.G.; BORODINA, M.L.

Properties of sol nuclei and of titanium hydroxide obtained
by the sulfuric acid method. Lakokras.mat.i ikh prim.
no.1:26-30 '63.   (MIRA 16:2)

(Titanium hydroxide)
(Colloids)

FEDOTOVA, K.

      In synthetic fiber plants. Khim. volok. no.2:70 '59.
                                 (MIRA 12:9)

    1.Klinskiy kombinat.
                   (Textile fibers, Synthetic)

FEDOTOVA, K. G.

FD 125

USSR/Medicine - Dysentery

Card 1/1

Author   : Fedotova, K. G.

Title .   : The experimental treatment of patients suffering from bacterial dysentery with gramacidin at a cabinet of intestinal infections.

Periodical : Zhur. mikrobiol. epid. i immun. 4, 29, Apr 1954

Abstract   : Per anum administration of gramacidin to ambulatory patients suffering from chronic dysentery is described. The course of treatment and its results are given. No references are cited.

Institution : The Medical Association of the Kuybyshev Railroad Network (Chief - A. L. Zavidovich) and Chair of Infectious Diseases (Head - Prof. V. P. Petrov) of the Kuybyshev Medical Institute

Submitted   : June 30, 1953

KORTEV, A.I., kandidat medivsinskikh nauk; FEDOTOVA, K.G.

Treatment of patients with chronic bacterial dysentery in
polyclinics. Sov.med.18 no.1:31-32 Ja '54.   (MLRA 7:1)

1. Iz kafedry infektsionnykh boleznoy (zaveduyushchiy -
zaslushennyy deyatel' nauki professor V.P.Petrov) Kuybyshev-
skogo meditsinskogo instituta (direktor - professor T.I.
Yeroshevskiy) i lechebno ob"yedineniya zheleznodorozhnogo uzla
stantsii Kuybyshev (nachal'nik A.L.Davidovich).   (Dysentery)

FEDOTOVA, X.G.

Three years' work of the section intestinal diseases at the consolidated railroad hospital at Kuibyshev station. Zhur.mikro-biol.epid. i immun. 27 no.5:70-73 My '56.   (MIRA 9:8)

1. Iz lechebnogo ob'yedineniya sheleznodoroshnogo uzla st. Kuybyshev.
    (GASTROINTESTINAL DISEASES, epidemiol.
        in Russia)

YAMPOL'SKAYA, M.M. [IAmpol's'ka, M.M.], kand.farmats.nauk; BUSHKOVA, M.M.;
     FEDOTOVA, K.I.
        Consultation by correspondence on problems in the preparation of
        some rare medicinal forms by the volume-weight method. Farmatsev.
        zhur. 15 no.1:81-84 '60.   (MIRA 14:5)

        1. Direktor TSentral'noy nauchno-issledovatel'skoy aptechnoy laboratorii
        pri Glavnom upravlenii Ministerstva okhrany zdorov'ya USSR. (for
        Bushkova).
            (MEDICINE--FORMULAE, RECEIPTS, PRESCRIPTIONS)

POPOVA, N. L.

Dyki korysni roslyny Starobil'shchyny, Obsleduvaniya Ukr, Instituta
Prikladnoi Botaniky, 1929, manuscript.